

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

**C Number:** C01741

**Cage Range:** All

**Date Range:** All

**Reasons For Removal:** All

**Removal Date Range:** All

**Treatment Groups:** All

**Study Gender:** Male

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_011

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Heart

Kidney

Lung

Testis

Trachea

Unspecified

Myocardium Nos

Multiple Organs Nos

Metamorphosis, Fatty

Fibrosis

Inflammation, Chronic

Alveolar Macrophages

Atrophy, Nos

Interstitial-Cell Tumor

Inflammation, Suppurative

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_012

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Lung

Testis

Thyroid

Bronchiole

Inflammation, Chronic

Inflammation, Suppurative

Atrophy, Nos

Interstitial-Cell Tumor

Follicular-Cell Adenoma

Hyperplasia, C Cell

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_013

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Brain	Cerebrum	Hemorrhage
Kidney	Pelvis	Hyperplasia, Epithelial
		Inflammation, Chronic
Liver		Hyperplasia, Focal
Lung		Alveolar Macrophages
Pituitary gland		Acidophil Adenoma
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Follicular-Cell Carcinoma

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_014

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Lung	Alveoli	Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Chronic
Unspecified	Multiple Organs Nos	Lymphoma, Undifferentiated-Malignant Type

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_015

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Adrenal gland  
Kidney  
Liver

Medulla

Hyperplasia, Nos  
Inflammation, Chronic  
Hyperplasia, Focal

Bile Duct

Hyperplasia, Nos  
Bronchopneumonia, Nos

Lung  
Pancreas  
Pituitary gland  
Testis

Islets

Islet-Cell Adenoma  
Acidophil Adenoma  
Atrophy, Nos  
Interstitial-Cell Tumor  
Hyperplasia, C Cell  
Inflammation, Suppurative

Thyroid  
Trachea

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_021

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Preputial gland		Cyst, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative
Unspecified	Multiple Organs Nos	Mesothelioma, Malignant

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_022

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Testis

Atrophy, Nos

Trachea

Interstitial-Cell Tumor

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_023

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Liver

Hyperplasia, Focal

Testis

Interstitial-Cell Tumor

Unspecified

Groin

Hemangioma

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_024

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Intestine Small

Serosa, Ileum

Hemorrhage

Kidney

Ileum

Inflammation, Suppurative

Liver

Pelvis

Hyperplasia, Epithelial

Stomach

Inflammation, Chronic

Testis

Hyperplasia, Focal

Trachea

Inflammation, Acute

Unspecified

Groin

Atrophy, Nos

Interstitial-Cell Tumor

Inflammation, Suppurative

Hemangioma

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_025

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

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**OBSERVATIONS**

Brain		Hemorrhage
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
Lung	Alveoli	Inflammation, Suppurative
Lymph node		Dilatation, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, Follicular Cell
Trachea		Inflammation, Chronic

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_031

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Pancreas

Testis

Unspecified

Islets

Multiple Organs Nos

Inflammation, Chronic

Fibrosis

Islet-Cell Adenoma

Atrophy, Nos

Interstitial-Cell Tumor

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_032

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Natural Death

**HISTO:**

---

**OBSERVATIONS**

Kidney

Testis

Unspecified

Urethra

Multiple Organs Nos

Inflammation, Chronic

Atrophy, Nos

Interstitial-Cell Tumor

Sarcoma, Nos

Hyperplasia, Epithelial

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_033

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Pancreas	Islets	Islet-Cell Carcinoma
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		C-Cell Adenoma

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_035

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Kidney

Inflammation, Chronic

Mammary gland

Galactocele

Pituitary gland

Chromophobe Adenoma

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Hyperplasia, C Cell

Unspecified

Multiple Organs Nos

Hyperplasia, Follicular Cell

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_041

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Pituitary gland		Chromophobe Adenoma
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_042

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Natural Death

**HISTO:**

---

**OBSERVATIONS**

Esophagus

Inflammation, Suppurative

Lung

Bronchiole

Inflammation, Suppurative

Trachea

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_043

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Ear	Canal	Hyperkeratosis
	Canal	Inflammation, Suppurative
Kidney		Inflammation, Chronic
Lung	Bronchiole	Inflammation, Suppurative
Mammary gland		Fibroadenoma
Pancreas		Fibrosis, Focal
Prostate		Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Chronic
Unspecified	Multiple Organs Nos	Lymphoma, Undifferentiated-Malignant Type

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_044

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Lung  
Thyroid  
Trachea

Bronchopneumonia, Nos  
Hyperplasia, C Cell  
Inflammation, Suppurative

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_045

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver		Hyperplasia, Focal
Pituitary gland		Chromophobe Adenoma
Preputial gland		Abscess, Nos
Spleen		Hematopoiesis
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_051

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Kidney

Liver

Testis

Bile Duct

Inflammation, Chronic

Hepatocytomegaly

Hyperplasia, Focal

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_052

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Kidney

Inflammation, Chronic

Liver

Hepatocytomegaly

Prostate

Hyperplasia, Focal

Testis

Inflammation, Suppurative

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Trachea

Hyperplasia, C Cell

Inflammation, Suppurative

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_053

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Adrenal gland  
Kidney

Cortex Nos

Hyperplasia, Focal  
Inflammation, Chronic  
Tubular-Cell Adenoma

Liver  
Testis

Bile Duct

Hyperplasia, Nos  
Atrophy, Nos  
Interstitial-Cell Tumor

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_054

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

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**OBSERVATIONS**

Lung  
Thyroid  
Trachea

Bronchopneumonia, Nos  
Hyperplasia, C Cell  
Inflammation, Chronic

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_055

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos Chromophobe Adenoma
Pituitary gland		Atrophy, Nos Interstitial-Cell Tumor
Testis		Hyperplasia, C Cell
Thyroid		

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_061

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Pelvis

Hyperplasia, Epithelial

Inflammation, Chronic

Parathyroid gland

Hyperplasia, Nos

Testis

Atrophy, Nos

Trachea

Interstitial-Cell Tumor

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 1\_062

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Endocardium Nos Myocardium Nos	Inflammation, Suppurative Inflammation, Suppurative
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Lung	Bronchiole	Inflammation, Suppurative
Parathyroid gland		Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Unspecified		Fibroma

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_063

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Liver

Pituitary gland

Testis

Bile Duct

Inflammation, Chronic

Hyperplasia, Nos

Chromophobe Adenoma

Atrophy, Nos

Interstitial-Cell Tumor

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_064

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Natural Death

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Liver

Necrosis, Focal

Testis

Atrophy, Nos

Thymus

Interstitial-Cell Tumor

Thyroid

Lymphoma, Nos-Malignant

Trachea

Cyst, Ultimobranchial

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_065

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Liver

Hyperplasia, Focal

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Trachea

Hyperplasia, C Cell

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_071

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Brain	Cerebellum Nos	Necrosis, Focal
Kidney		Inflammation, Chronic
Lung		Hemorrhage
Stomach	Mucosa	Erosion
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Unspecified	Multiple Organs Nos	Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_072

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Parathyroid gland

Hyperplasia, Nos

Preputial gland

Carcinoma, Nos

Spleen

Hyperplasia, Lymphoid

Testis

Atrophy, Nos

Trachea

Interstitial-Cell Tumor

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_073

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hepatocytomegaly
Parathyroid gland		Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_074

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Heart

Kidney

Liver

Testis

Thyroid

Trachea

Myocardium Nos

Bile Duct

Pheochromocytoma

Fibrosis

Inflammation, Chronic

Hyperplasia, Focal

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Hyperplasia, C Cell

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 1\_075

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 800 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Parathyroid gland		C-Cell Carcinoma, Invasive
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		C-Cell Carcinoma
Trachea		Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_011

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Mammary gland		Galactocele
Pancreas		Periarteritis
Testis		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_012

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Heart

Kidney

Liver

Testis

Trachea

Myocardium Nos

Bile Duct

Pheochromocytoma

Fibrosis

Inflammation, Chronic

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_013

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
		Hyperplasia, Follicular Cell

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_014

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative
Unspecified	Multiple Organs Nos	Lymphoma, Mixed-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_015

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Focal

Kidney

Inflammation, Chronic

Liver

Bile Duct

Hyperplasia, Nos

Lung

Alveolar Macrophages

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Trachea

Hyperplasia, C Cell

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_021

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Liver

Testis

Thyroid

Trachea

Bile Duct

Inflammation, Chronic

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Hyperplasia, C Cell

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_022

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Testis

Atrophy, Nos

Trachea

Interstitial-Cell Tumor

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_023

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Liver

Testis

Bile Duct

Inflammation, Chronic

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Thyroid

Hyperplasia, C Cell

Trachea

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_024

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Kidney

Liver

Testis

Thyroid

Bile Duct

Bile Duct

Pheochromocytoma

Inflammation, Chronic

Fibrosis

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Hyperplasia, C Cell

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_025

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Focal

Kidney

Inflammation, Chronic

Liver

Bile Duct

Hyperplasia, Nos

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Trachea

Hyperplasia, C Cell

Inflammation, Chronic

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_031

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Lung		Hyperplasia, Alveolar Epithelium
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_032

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Spleen	Capsule	Fibrosis, Focal
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative
Urethra		Hyperplasia, Epithelial

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_033

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Fibrosis
	Bile Duct	Hyperplasia, Nos
Pituitary gland		Chromophobe Adenoma
Testis		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_034

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Parathyroid gland		Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_035

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Pituitary gland		Chromophobe Adenoma
Prostate		Inflammation, Suppurative
Testis		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_041

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart  
Kidney  
Preputial gland

Myocardium Nos

Prostate  
Testis

Thyroid

Trachea

Fibrosis  
Inflammation, Chronic  
Cystic Ducts  
Hyperplasia, Nos  
Inflammation, Suppurative  
Atrophy, Nos  
Interstitial-Cell Tumor  
C-Cell Adenoma  
Hyperplasia, C Cell  
Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_042

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung		Hyperplasia, Alveolar Epithelium
Prostate		Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_043

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver		Hepatocytomegaly Hyperplasia, Focal
Lung		Alveolar Macrophages
Testis		Atrophy, Nos Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_044

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung	Bronchus	Bronchiectasis
	Bronchiole	Hyperplasia, Epithelial
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_045

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver		Hepatocytomegaly
Testis	Bile Duct	Hyperplasia, Nos Atrophy, Nos
Thyroid		Interstitial-Cell Tumor
Trachea		Hyperplasia, C Cell Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_051

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Kidney

Liver

Testis

Bile Duct

Pheochromocytoma

Inflammation, Chronic

Hyperplasia, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Thyroid

Trachea

Hyperplasia, C Cell

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_052

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung		Congestion, Nos
Prostate		Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative
Urethra		Calculus, Unknown Gross Or Micro

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 2\_053

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland  
Kidney  
Liver  
Lung  
Mammary gland  
Pancreas  
Prostate  
Testis  
  
Trachea

Medulla  
  
  
  
  
Acinus

Hyperplasia, Nos  
Inflammation, Chronic  
Hepatocytomegaly  
Alveolar Macrophages  
Cyst, Nos  
Atrophy, Focal  
Inflammation, Suppurative  
Atrophy, Nos  
Interstitial-Cell Tumor  
Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 2\_054

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Pituitary gland		Chromophobe Adenoma
Testis		Atrophy, Nos Interstitial-Cell Tumor

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_055

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

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**OBSERVATIONS**

Brain	Meninges	Fibrosis
Eye	Crystalline Lens	Mineralization
Heart	Myocardium Nos	Fibrosis
Kidney	Pelvis	Hyperplasia, Epithelial
		Hyperplasia, Tubular Cell
		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung	Bronchiole	Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

**ANIMAL ID:** 2\_061

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Focal

Heart

Myocardium Nos

Fibrosis

Kidney

Pelvis

Hyperplasia, Epithelial

Inflammation, Chronic

Liver

Hyperplasia, Focal

Mammary gland

Galactoceles

Pituitary gland

Chromophobe Adenoma

Prostate

Inflammation, Suppurative

Testis

Atrophy, Nos

Interstitial-Cell Tumor

Thyroid

Hyperplasia, C Cell

Trachea

Inflammation, Suppurative

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_062

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hepatocytomegaly
		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Lung		Alveolar Macrophages
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_063

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver		Hepatocytomegaly
	Bile Duct	Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_064

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Nos

Kidney

Inflammation, Chronic

Lung

Congestion, Nos

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

C-Cell Adenoma

Unspecified

Multiple Organs Nos

Hyperplasia, C Cell

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

**ANIMAL ID:** 2\_065

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver		Angiectasis Hepatocytomegaly
Testis	Bile Duct	Hyperplasia, Nos Atrophy, Nos Interstitial-Cell Tumor
Thyroid		C-Cell Adenoma Hyperplasia, C Cell
Unspecified		Fibroma
	Multiple Organs Nos	Lymphoma, Undifferentiated-Malignant Type

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_071

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Pituitary gland		Chromophobe Adenoma
Preputial gland		Carcinoma, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative
Unspecified	Adipose Tissue	Inflammation, Nos

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_072

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Stomach

Mucosa

Abscess, Nos

Testis

Interstitial-Cell Tumor

Unspecified

Multiple Organs Nos

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_073

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Lung

Testis

Alveoli

Inflammation, Chronic

Emphysema, Nos

Atrophy, Nos

Interstitial-Cell Tumor

Inflammation, Suppurative

Trachea

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_074

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Eye	Crystalline Lens	Mineralization
Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung		Congestion, Nos
Pancreas	Acinus	Atrophy, Nos
Skin	Eyelid Nos	Inflammation, Suppurative
Testis		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 2\_075

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 400 PPM

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Focal

Heart

Myocardium Nos

Fibrosis

Kidney

Inflammation, Chronic

Liver

Bile Duct

Fibrosis

Pituitary gland

Bile Duct

Hyperplasia, Nos

Testis

Chromophobe Adenoma

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Trachea

Hyperplasia, C Cell

Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_011

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Lung		Alveolar Macrophages
		Cytomegaly
	Bronchus	Inflammation, Suppurative
	Bronchus	Metaplasia, Squamous
		Pigmentation, Nos
Lymph node		Hyperplasia, Lymphoid

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_012

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Kidney

Inflammation, Chronic

Prostate

Inflammation, Suppurative

Skin

Neurilemoma

Testis

Interstitial-Cell Tumor

Trachea

Inflammation, Suppurative

Unspecified

Multiple Organs Nos

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_013

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Intestine Large  
Kidney

Large Intestine, Colon  
Pelvis

Nematodiasis  
Hyperplasia, Epithelial  
Inflammation, Chronic

Liver

Bile Duct

Hyperplasia, Focal  
Hyperplasia, Nos

Pancreas

Parathyroid gland

Fibrosis, Diffuse

Skin

Hyperplasia, Nos

Testis

Keratoacanthoma

Interstitial-Cell Tumor

---

**PRIMARY CAUSE OF DEATH**

-

---

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_014

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Brain

Hemorrhage

Heart

Myocardium Nos

Hemorrhage

Skeletal muscle

Hemorrhage

Testis

Interstitial-Cell Tumor

Unspecified

Multiple Organs Nos

Lymphoma, Undifferentiated-Malignant Type

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_015

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Brain		Hemorrhage
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Lung		Alveolar Macrophages
Prostate		Inflammation, Suppurative
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

---

**ANIMAL ID:** 3\_021

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hepatocytomegaly
	Bile Duct	Hyperplasia, Nos
Lung		Congestion, Nos
		Hyperplasia, Alveolar Epithelium
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		Hyperplasia, C Cell
Trachea		Inflammation, Suppurative

---

**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

**ANIMAL ID:** 3\_022

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Fibrosis
	Bile Duct	Hyperplasia, Nos
Lung		Bronchopneumonia, Nos
Pancreas	Islets	Hyperplasia, Nos
Parathyroid gland		Hyperplasia, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Thyroid		C-Cell Carcinoma
Trachea		Inflammation, Suppurative

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_023

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

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**OBSERVATIONS**

Kidney

Hamartoma

Liver

Inflammation, Chronic

Hepatocytomegaly

Hyperplasia, Focal

Bile Duct

Hyperplasia, Nos

Testis

Atrophy, Nos

Interstitial-Cell Tumor

Trachea

Inflammation, Suppurative

Unspecified

Multiple Organs Nos

Lymphoma, Undifferentiated-Malignant Type

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_024

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

---

**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Nos

Kidney

Inflammation, Chronic

Liver

Bile Duct

Fibrosis

Hyperplasia, Focal

Prostate

Bile Duct

Hyperplasia, Nos

Testis

Inflammation, Suppurative

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Hyperplasia, C Cell

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_025

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Moribund Sacrifice

**HISTO:**

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**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung		Alveolar Macrophages
Lymph node	Mandibular Lymph Node	Hyperplasia, Lymphoid
Testis		Atrophy, Nos
		Interstitial-Cell Tumor

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

**ANIMAL ID:** 3\_031

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney	Pelvis	Hyperplasia, Epithelial Inflammation, Chronic
Liver		Hepatocytomegaly Hyperplasia, Focal
Lung	Bile Duct	Hyperplasia, Nos
Prostate	Bronchiole	Inflammation, Suppurative
Testis		Periarteritis Atrophy, Nos
Thyroid		Interstitial-Cell Tumor
Unspecified	Multiple Organs Nos	Hyperplasia, C Cell Lymphoma, Undifferentiated-Malignant Type

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_032

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Heart	Myocardium Nos	Fibrosis
Kidney		Inflammation, Chronic
Liver		Hyperplasia, Focal
	Bile Duct	Hyperplasia, Nos
Lung		Congestion, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor
Trachea		Inflammation, Suppurative
Urinary bladder		Congestion, Nos

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_033

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Adrenal gland

Heart

Kidney

Liver

Lung

Testis

Trachea

Myocardium Nos

Myocardium Nos

Bile Duct

Bronchiole

Pheochromocytoma

Fibrosis

Metaplasia, Osseous

Inflammation, Chronic

Hyperplasia, Focal

Hyperplasia, Nos

Inflammation, Suppurative

Atrophy, Nos

Interstitial-Cell Tumor

Inflammation, Suppurative

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_034

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Scheduled Sacrifice

**HISTO:**

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**OBSERVATIONS**

Adrenal gland

Medulla

Hyperplasia, Nos

Heart

Myocardium Nos

Fibrosis

Kidney

Pelvis

Hyperplasia, Epithelial

Inflammation, Chronic

Liver

Hyperplasia, Focal

Bile Duct

Hyperplasia, Nos

Parathyroid gland

Hyperplasia, Nos

Testis

Atrophy, Nos

Thyroid

Interstitial-Cell Tumor

Hyperplasia, C Cell

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** C01741

**Test Type:** Long-Term

**Route:** Dosed-Feed

**Species/Strain:** Rat/F344

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Phenformin hydrochloride

**CAS Number:** 834-28-6

**Date Report Requested:** 10/26/2014

**Time Report Requested:** 15:53:24

**First Dose M/F:** NA / NA

**Lab:** NA

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**ANIMAL ID:** 3\_035

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:**

**DOSE:** 0

**DISP:** Natural Death

**HISTO:**

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**OBSERVATIONS**

Kidney		Inflammation, Chronic
Liver	Bile Duct	Hyperplasia, Nos
Lung		Congestion, Nos
Testis		Atrophy, Nos
		Interstitial-Cell Tumor

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**PRIMARY CAUSE OF DEATH**

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**\*\* END OF REPORT \*\***